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A New Cavernicolous Crab from Bohol, the Philippines

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During the speleological expedition to the Philippines made from February 21 to March 31, 1983, various cavernicolous animals were collected in a series of limestone caves of Bohol, Cebu and Luzon by the party of twelve students of Meiji, Tokai, Okayama and Ryukyu Universities. The crabs and shrimps then collected were transmitted to the author for identification through Dr. Shun-Ichi UÉNO of the National Science Museum, Tokyo.

The crabs to be reported are represented only by a pair of specimens from Ughob and Quinapon-an Caves in Bohol. The larger one is a female having apparently reduced cornea, while in the smaller one, a male, the cornea is still distinctly pigmented, though the eyestalk is much smaller than the orbit. After a long consideration, it has been concluded that both the specimens represent a different sex of the same species because of the exact similarity of other features. In the present paper these crabs are described as a new species under the name of *Archipelothelphusa cavernicola*.

The author's cordial thanks are due to the members of the expedition, who collected these interesting crabs, and also to Dr. Shun-Ichi UÉNO, the president of the Japan Caving Association, who was kind enough to place the specimens and literature at the author's hand. The specimens are preserved in the National Science Museum, Tokyo (NSMT).

Family Sundathelphusidae
Genus *Archipelothelphusa* BOTT, 1969
Archipelothelphusa cavernicola sp. nov.

(Figs. 1, 2)

Type series. Holotype (female, NSMT-Cr 8937); on muddy bottom of a subterranean stream, 20–30 cm deep, about 300 m removed from the entrance to the east branch of Quinapon-an Cave (9°49′38″N, 123°54′10″E), Antequera, Bohol; March 4, 1983. Paratype (male, NSMT-Cr 8938); in a shallow subterranean water, about 50 m removed from the entrance to Ughob Cave (9°46′45″N, 124°07′54″E), Batuan, Bohol; February 28, 1983.

Measurements. Breadth and length of carapace, 25.7 and 21.0 mm in holotype, 17.3 and 13.4 mm in paratype; distance between epibranchial teeth of both sides, 21.0 mm in holotype, 14.4 mm in paratype; frontorbital and frontal breadth, 16.8 and 7.0

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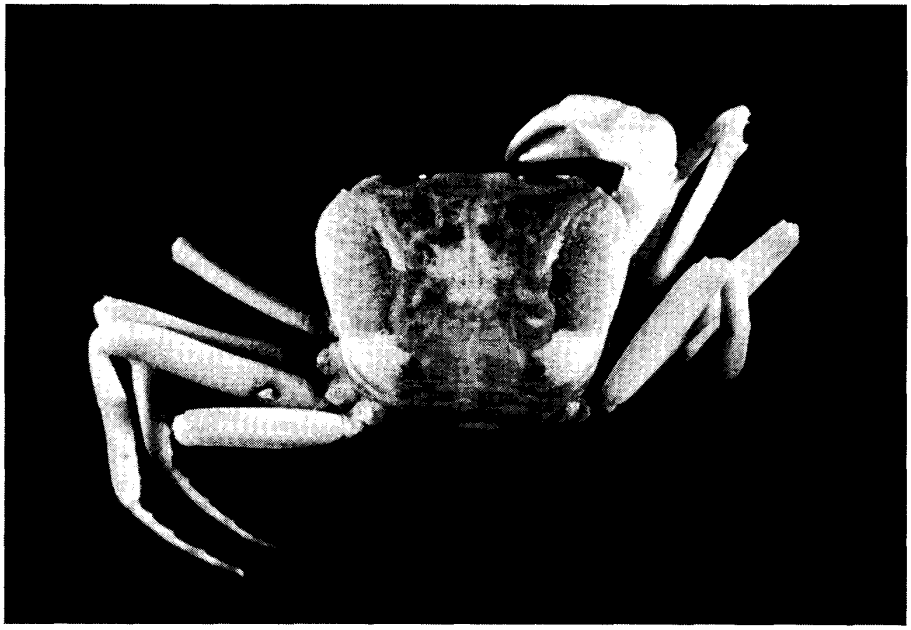

Fig. 1. *Archipelothelphusa cavernicola* sp. nov., holotype female.

mm in holotype, 12.0 and 4.5 mm in paratype.

Description of holotype female. Carapace much convex longitudinally, flattened transversely, quadrate and slightly broader than long, its greatest breadth lying at about anterior third of branchial regions of both sides; dorsal surface obscurely but symmetrically uneven; epigastric area very weakly demarcated at its anterior part and ornamented by some indistinct, transverse wrinkles, being not delimited from protogastric part; median groove between both epigastric parts distinct, but faded out without bifurcation in front of mesogastric part; postorbital ridge oblique, linear and sharp, being not confluent with epigastric wrinkles; an oblique deep furrow present between protogastric and branchial regions, not reaching H-shaped depression separating mesogastric and cardiac regions; branchial region of an inflated appearance with a distinct sharp ridge along its anterior third, being covered with oblique striae of variable length; striae on posterior two-thirds (behind the broadest part of carapace) rather long and directed to subhepatic region through subbranchial region.

Frontorbital region sunk, but not strongly declivous, its margin being narrowly but sharply crested throughout; in dorsal view, frontal margin, which is actually the upper margin of frontal triangle, very weakly concave for its median part; true frontal margin forms the roof of antennular fossa, not directly continuous with upper margin of frontal triangle which is deeply concave. In dorsal view, supraorbital margin shallowly concave without interruption, its external angle being obtusely rounded. Epibranchial tooth slightly smaller but sharper than external orbital tooth. Infraorbital margin raised, thin and not confluent with external orbital angle, visible from above for its most part because of remarkable reduction of eyestalk. Orbit deep;

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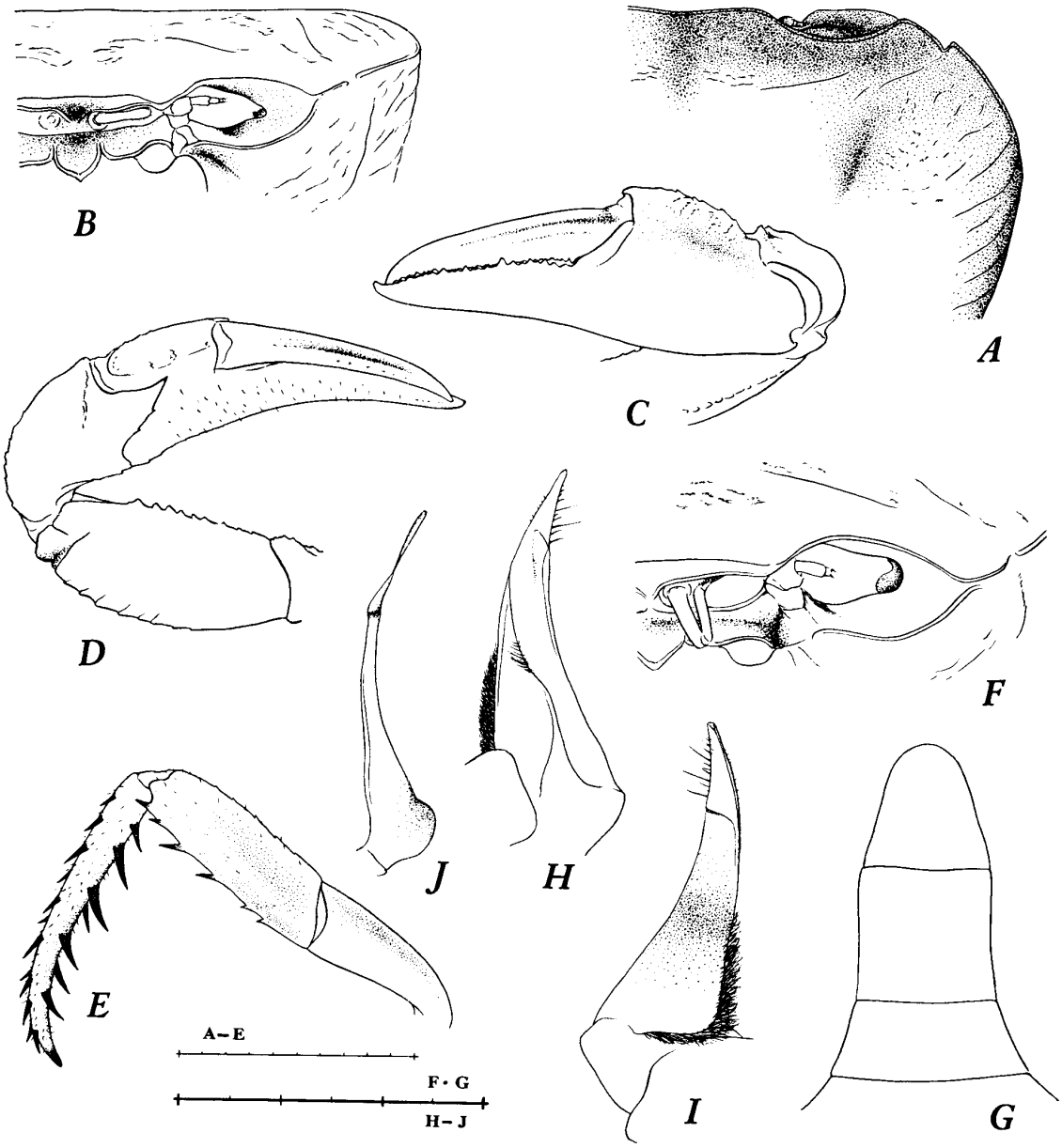

Fig. 2. *Archipelothelphusa cavernicola* sp. nov., holotype female (A–E) and paratype male (F–J). —— *A* and *B*, frontorbital region in dorsal and frontal view, respectively; *C* and *D*, left cheliped in frontal and dorsal view, respectively; *E*, distal three segments of left fourth ambulatory leg; *F*, frontorbital region in frontal view; *G*, distal three segments of abdomen; *H* and *I*, first pleopod of right side in ventral and dorsal view, respectively; *J*, second pleopod of right side in ventral view. Scales in mm.

eyestalk almost fixed, filling about a half the orbit; cornea strongly reduced, with faint pigment, apparently not functional. Epistome deeply sunk, with anterior margin straight and strongly crested; its posterior margin bearing a median triangular projection and a concavity at each side for reception of palp of third maxilliped; each

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lateral part of posterior margin deeply concave for its outer half to form anterior margin of large efferent opening.

Chelipeds comparatively large and almost smooth to unaided eye, only with faint striae; three margins of merus sharp; inner surface excavated, outer surface weakly convex, and lower surface flattened; upper margin more or less serrulate by striae; a submarginal furrow on outer surface, by which the upper and lower outer margins are deeply incised; inner angle of carpus very strongly developed as a depressed tubercle; upper margin of palm with some sharp granules, being about a half as long as lower margin; a longitudinal shallow furrow on upper submedian part; fingers as long as lower margin of palm, weakly curved inwards; cutting edges minutely but sharply toothed throughout their length.

Ambulatory legs slender and depressed, slightly more than twice the breadth of carapace; anterior margin and both posterior margins of meri sharply crested, and anterior margin of each pair indistinctly serrulate, with a subterminal shallow interruption; anterior margins of carpi and propodi also sharp, but the anterior margin of propodus is narrowly truncated and provided with some spinules on each margin; both posterior margins of each propodus also with five or six horny spines, distal two or three of which are very long like those on dactyli; four or five horny spines each on upper and lower posterior margins of dactyli markedly long and sharp.

Notes on paratype male. Perfectly accords with the holotype female in the general formation of carapace, chelipeds and ambulatory legs, but the cornea is not so strongly reduced and the eyestalk is slightly movable and occupies about two-thirds the longer axis of orbit, its anterior margin being longitudinally ridged.

Abdomen narrow with all segments free; first segment short and almost linear to unaided eye; second segment is the widest of abdominal segments, second to fifth segments becoming progressively longer; penultimate segment about one and a half as long as the preceding segment, and only slightly longer than the terminal segment. First pleopod reaching about middle of sternite of second ambulatory leg, regularly tapering and very weakly curved outwards; distal segment about a half as long as the preceding segment, being fringed with several hairs along its outer margin. Second pleopod as long as the first, but not reaching the tip in natural position; distal segment thin and about a half as long as the preceding segment.

Remarks. As enumerated by HOLTHUIS (1979, 1980) and supplemented by the same author (1982), the cavernicolous crabs with reduced or completely regenerated eyes have hitherto been known only from Middle America and the West Pacific areas. They are: *Typhlopseudothelphusa mocinoi* RIOJA, 1952, from Mexico, *T. mitchelli* DELAMARE DEBOUTTEVILLE, 1976 and *T. juberthiei* DELAMARE DEBOUTTEVILLE, 1976, both from Guatemala (Family Pseudothelphusidae); *Trichodactylus mensabak* COTTARELLI et ARGANO, 1977, from Mexico (Family Trichodactylidae); *Cerberusa tipula* HOLTHUIS, 1979 and *C. caeca* HOLTHUIS, 1979, both from Borneo (Family Potamidae); *Holthuisiana alba* HOLTHUIS, 1980 and *Rouxana phreatica* HOLTHUIS, 1982, both from Papua New Guinea (Family Sundathelphusidae).

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The present new species is readily distinguished from the known troglobiontic species enumerated above, even from two species of the same family, by having the distinct epibranchial tooth. The genus *Archipelothelphusa*, to which the new species belongs, is represented by three known species from the Philippines, viz., *A. grapsoides* (H. MILNE EDWARDS) from Luzon and Leyte, *A. wolterecki* (BALSS) from Mindanao, and *A. sutteri* BOTT from Luzon. These species are ordinary in habits and habitats, and do not show any tendency to the reduction of eyes. The strong development of the horny spines on the distal two segments of the ambulatory legs may also be the result of adaptation to the special habitat of the present new species.

Literature

BOTT, R., 1970. Die Süsswasserkrabben von Europa, Asien, Australien und ihre Stammesgeschichte. Eine Revision der Potamoidea und der Parathelphusoidea (Crustacea, Decapoda). *Abh. Senckenb. naturf. Ges.*, **526**: 1–338.

COTTARELLI, V. & R. ARGANO, 1977. *Trichodactylus* (*Rodriguezia*) *mensabak* n. sp. (Crustacea, Decapoda, Brachyura), granchio cieco delle acque sotterranee del Chiapas (Messico). *Quad., Accad. Naz. Lincei*, **171**: 207–212.

DELAMARE DEBOUTTEVILLE, C., 1976. Sur la radiation évolutive des crabes du genre *Typhlopseudothelphusa* au Guatémala et au Mexique avec description d'espèces nouvelles. *Ann. Spéléol.*, **31**: 115–129.

HOLTHUIS, L. B., 1979. Cavernicolous and terrestrial decapod Crustacea from northern Sarawak, Borneo. *Zool. Verhand.*, **171**: 31–47, pls. 1–8.

——— 1980. A new cavernicolous freshwater crab from New Guinea (Crustacea Decapoda). *Zool. Meded.*, **55**: 313–320.

——— 1982. Notes on Indo-West Pacific Crustacea Decapoda. I. *Rouxana phreatica*, a new cavernicolous crab from New Guinea. *Crustaceana*, **42**: 26–31.

RIOJA, E., 1952. Estudios carcinologicos. XXVIII. Descripcion de un nuevo genero de potamonidos cavernicolas y ciegos de la Cueva del Tio Ticho, Comitan, Chis. *An. Inst. Biol., Mexico*, **23**: 217–225.

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